

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 1814 - 65002	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2011/059518	International filing date (day/month/year) 07/11/2011	(Earliest) Priority Date (day/month/year) 12/11/2010
Applicant NATIONAL OILWELL VARCO, L. P.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

the text is approved as submitted by the applicant

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

as suggested by the applicant

as selected by this Authority, because the applicant failed to suggest a figure

as selected by this Authority, because this figure better characterizes the invention

b. none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/059518

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B44/00
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/070829 A2 (NABORS GLOBAL HOLDINGS LTD; BOONE SCOTT [US]; ELLIS BRIAN [US]; KUTTEL) 12 June 2008 (2008-06-12) abstract figures 1,5 paragraph [0025] - paragraph [0027] paragraph [0033] - paragraph [0034] paragraph [0039] - paragraph [0040] paragraph [0050] paragraph [0057] - paragraph [0059] paragraph [0094] - paragraph [0107] paragraph [0116] - paragraph [0117] paragraph [0142] paragraph [0246] - paragraph [0247] ----- -/--	1-24

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

30 November 2012

Date of mailing of the international search report

11/12/2012

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/059518

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 01/79658 A1 (NOBLE DRILLING SERVICES INC [US]) 25 October 2001 (2001-10-25) abstract figures 1,2,5,6 page 3, line 28 - page 5, line 6 page 9, line 28 - page 10, line 9 page 10, line 22 - page 11, line 10 page 11, line 30 - page 12, line 7 page 12, line 27 - page 13, line 6 page 15, line 19 - line 26 page 16, line 30 - page 17, line 1 page 18, line 22 - page 19, line 13</p> <p>-----</p>	1-24
X	<p>US 5 842 149 A (HARRELL JOHN W [US] ET AL) 24 November 1998 (1998-11-24) abstract figures 1,8,9,10 column 3, line 56 - column 4, line 35 column 4, line 55 - line 58 column 19, line 22 - line 36 column 20, line 6 - line 32 column 21, line 28 - line 44 column 22, line 54 - line 61 column 23, line 21 - column 24, line 5</p> <p>-----</p>	1-24
X	<p>US 2003/015351 A1 (GOLDMAN WILLIAM A [US] ET AL) 23 January 2003 (2003-01-23) abstract figures 1,2 paragraph [0033] - paragraph [0037] paragraph [0040] paragraph [0056] - paragraph [0060] paragraph [0063] - paragraph [0064]</p> <p>-----</p>	1-24
A	<p>US 6 662 110 B1 (BARGACH SAAD [GB] ET AL) 9 December 2003 (2003-12-09) abstract figures 1-3 column 4, line 21 - line 50 column 5, line 4 - line 7 column 6, line 4 - line 17 column 6, line 40 - line 44 column 6, line 58 - column 7, line 3 column 7, line 18 - line 24 column 7, line 46 - line 57 column 8, line 54 - line 56 column 9, line 41 - column 10, line 41</p> <p>-----</p> <p style="text-align: center;">-/--</p>	1-24

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International application No
PCT/US2011/059518

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2009/135157 A2 (BAKER HUGHES INC [US]; BYREDDY CHAKRADHAR R [US]; DASHEVSKIY DMITRIY []) 5 November 2009 (2009-11-05) abstract figures 1,7 paragraph [0011] - paragraph [0012] paragraph [0018] paragraph [0023] paragraph [0031] - paragraph [0033] paragraph [0035] paragraph [0038] -----	1-24

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2011/059518

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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			US 2010108384 A1 06-05-2010
			WO 2009135157 A2 05-11-2009